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IS 4383 (1983): Pilot and Embarkation Ladders [TED 17: Shipbuilding]

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Indian Standard

(Reaffirmed 2005)

SPECIFICATION FOR PILOT AND EMBARKATION LADDERS

(*First Revision*)

Shipbuilding Sectional Committee, MCPD 1 [Ref : Doc : MCPD 1 (580)]

1. Scope — Specifies requirements for a ship's pilot and embarkation ladders.

2. Terminology — For the purpose of this standard, the following definitions shall apply.

2.1 *Pilot Ladders* — A ladder intended for use of pilots for embarking and disembarking safely and fitted with spreaders in place of steps at a specified intervals.

2.2 *Embarkation Ladders* — A ladder intended for embarkation or disembarkation of ships passengers and crew to gain excess to a survival craft in an emergency.

2.3 *Step* — A step made of wood used for forming a ladder (*see* Fig. 1 and 2).

2.4 *Spreader* — A step terminating at a specified distance beyond the rope (*see* Fig. 1).

3. Material

3.1 The materials of components shall be in accordance with Table 1.

3.1.1 For pilot ladders, metal parts shall not be used except for item 5, 9, 10 and 11 (*see* Table 1).

3.1.2 For embarkation ladders, metal parts shall not be used except for item 5 (*see* Table 1).

3.2 Steps, spreader, replacement step, replacement spreader and split distance pieces shall each be made of hardwood free from knots, or from other materials having equivalent relative density, strength, durability and buoyancy. The lowest four steps may be made of rubber of sufficient strength and stiffness, or of other suitable material of equivalent characteristics. Steps and spreaders shall have an efficient non-slip surface.

TABEL 1 COMPONENTS AND MATERIALS

Item	Component	Material	Conforming to
1.	Step	Hardwood	IS : 399-1963*
2.	Spreader step	Hardwood	IS : 399-1963*
3.	Side ropes	Manila	IS : 1084-1969†
4.	Side rope seizing	Marline	—
5.	Rope thimble	Steel, galvanized	IS : 2315-1978‡
6.	Extension service rope	Manila	IS : 1084-1969†
7.	Replacement step	Hardwood	IS : 399-1963*
8.	Replacement spreader	Hardwood	IS : 399-1963*
9.	Coach bolt	Steel, galvanized	IS : 2609-1972§
10.	Washer	Steel, galvanized	IS : 2016-1967‖
11.	Locking nuts	Steel, galvanized	IS : 1364-1967¶

*Classification of commercial timbers and their zonal distribution.

†Specification for manila ropes (*second revision*).

‡Specification for thimbles for wire ropes (*first revision*).

§Specification for Coach bolts (*first revision*).

‖Specification for plain washers (*first revision*).

¶Specification for precision and semi-precision hexagon bolts, screws, nuts and lock nuts (diameter range 6 to 39 mm) (*first revision*).

3.3 The lashing for side ropes shall consist of two or three ply marline of minimum breaking strength of 800N, or other suitable material of equivalent strength.

Adopted 31 March 1983

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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4. Construction

4.1 The pilot ladder shall be assembled in accordance with Fig. 1 and Table 2 to have an equal step spacing or 310 ± 5 mm.

4.2 The embarkation ladder shall be assembled in accordance with Fig. 2 to have an equal spacing of 310 ± 5 mm.

4.3 Steps shall be constructed from one piece to the dimensions in Fig. 3. Their non-slip upper surfaces shall be provided by either :

a) longitudinal grooving, or

b) the application of an approved non-slip coating.

4.4 Spreader steps shall be constructed from one main bar and two split distance pieces to the dimensions given in Fig. 4, held firmly together by four coach bolts, washers and locking nuts. The dimensions of split distance pieces shall be as given in Fig. 5. Metal parts shall be galvanized in accordance with IS : 4759-1968. 'Hot-dip zinc coatings on structural steel and allied products'.

4.4.1 The spreaders shall be positioned in accordance with Table 2.

4.5 Side ropes shall have a diameter of 20 mm (circumference 64 mm) and shall be seized together as closely as possible above and below each step by a figure of eight racking seizing. The side ropes below the bottom step shall have a double racking seizing as shown in Fig. 1 and 2. A racking seizing shall be applied below the rope thimbles. Side ropes shall each be of one continuous length without joints.

4.6 For pilot ladder single 20 mm diameter (circumference 64 mm) manila extension service rope 3 000 mm in length (minimum) shall be fitted to each side rope thimble by means of an eye splice. (*see* Fig. 1).

4.7 All rope ends shall be whipped for a distance of 25 mm with waxed sailmaker's twine or equivalent material.

4.8 Two replacement steps shall be constructed from a single section to the dimensions given in **Fig. 6** and assembled with two split distance pieces as required in **4.4**

4.9 For pilot ladder two spare replacement spreader shall be constructed from one top section to the dimensions given in Fig. 7 and assembled with two split distance pieces as required in **4.4**

5. Workmanship — Finished ladders shall be free from splinters, burrs, sharp corners or projections which might be injurious to the hands or feet and other defects which may materially affect the appearance or serviceability.

6. Inspection and Maintenance — the soundness of rope, steps and various joints shall be periodically checked to ensure safety of the ladder during its use.

The damaged steps shall be rectified.

7. Designation

7.1 Pilot ladders *and embarkation ladders conforming to this standard shall be designated by* :

a) Type of ladder; EL for embarkation ladder and PL for pilot ladder

b) Number of steps

Example :

Embarkation ladder consisting of 14 steps shall be designated as : EL S14 IS : 4383

Note — The length of a pilot ladder or embarkation ladder determined by the designation shall include an allowance for a 15° adverse list.

7.2 Spare or additional components shall be designated by type of ladder and name of the component and reference to this standard.

Example : The spare step shall be designated as :

STEP IS : 4383

8. Marking — Pilot ladders or embarkation ladders conforming to this standard shall be permanently marked on top and bottom of two steps by the designation.

TABLE 2 NUMBER OF STEPS AND RELATIVE POSITIONS OF SPREADERS

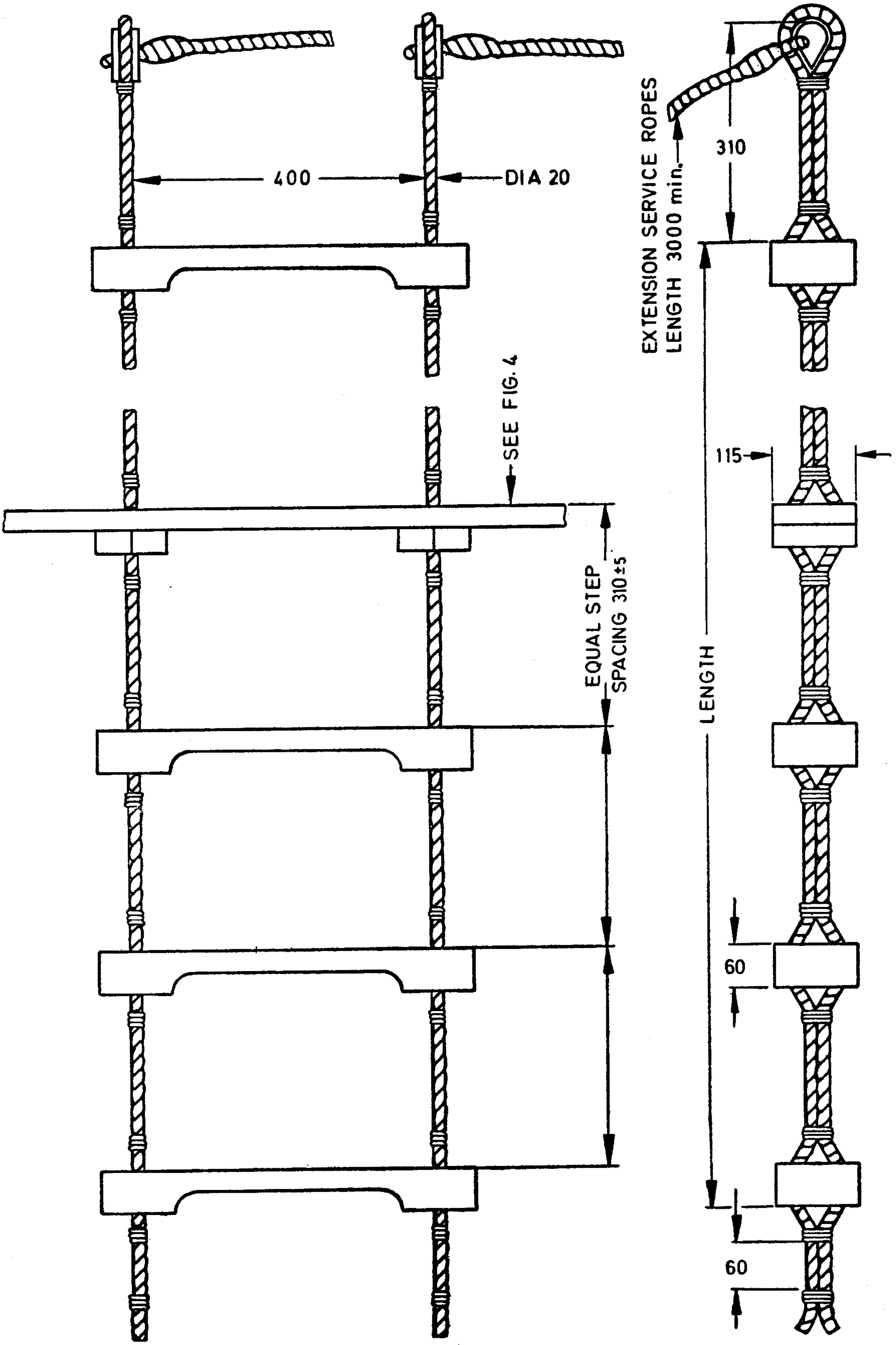
(*Clause* 4.4.1)

Number of Steps	Position(s) of Spreader(s)* (Counting from bottom)
6 to 13	5th
14	5th and 12th
15	5th and 13th
16 to 21	5th and 14th
22	5th and 14th
23	5th, 14th and 21st
24	5th, 14th and 22nd
25 to 30	5th, 14th and 23rd

*The spreader step positions are determined by the step number counted from the bottom of the ladder.

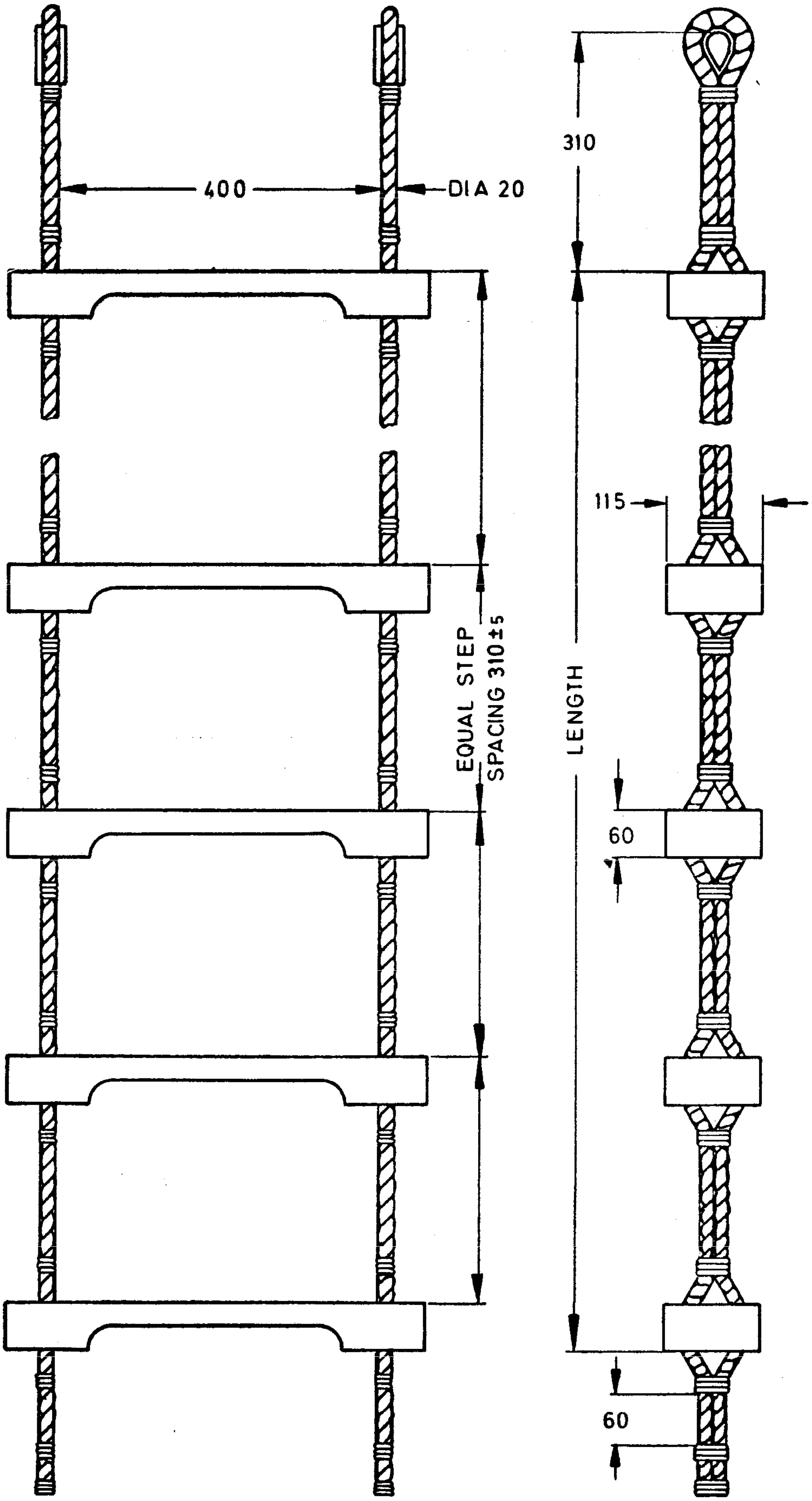
EXPLANATORY NOTE

This Indian Standard was first published in 1967. This revision has been necessitated to include the provisions of embarkation ladders which are similar to pilot ladders in many aspects. Further, the design of the step has been changed and the provision of checks in the formation of ladder has been left out. Also provision for a replacement step and replacement spreader step has been incorporated in this revision.



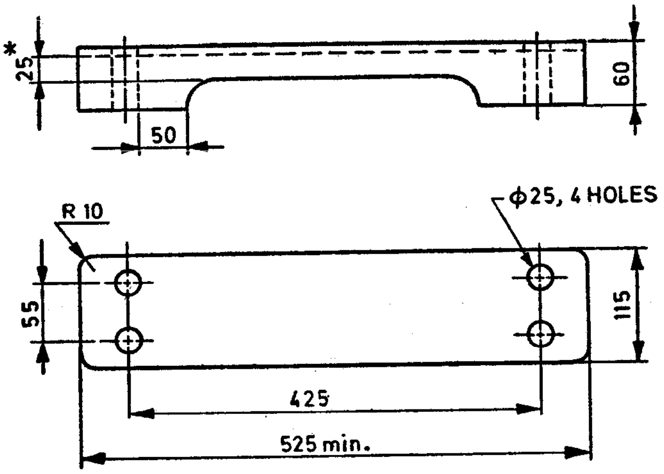
All dimensions in millimetres.

FIG. 1 ASSEMBLED PILOT LADDER



All dimensions in millimetres.

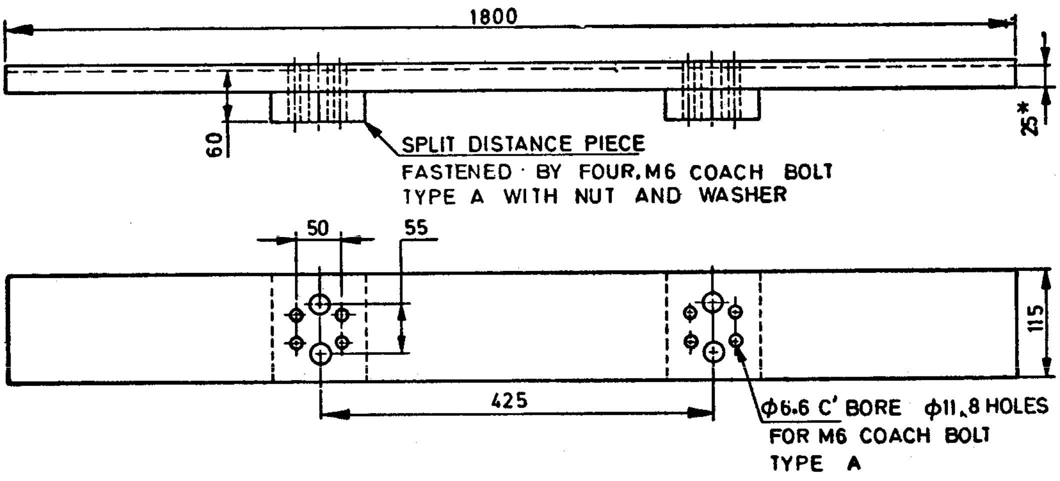
FIG. 2 ASSEMBLED EMBARKATION LADDER



*Excluding the depth of the grooving or non-slip coating see **4.3**

All dimensions in millimetres.

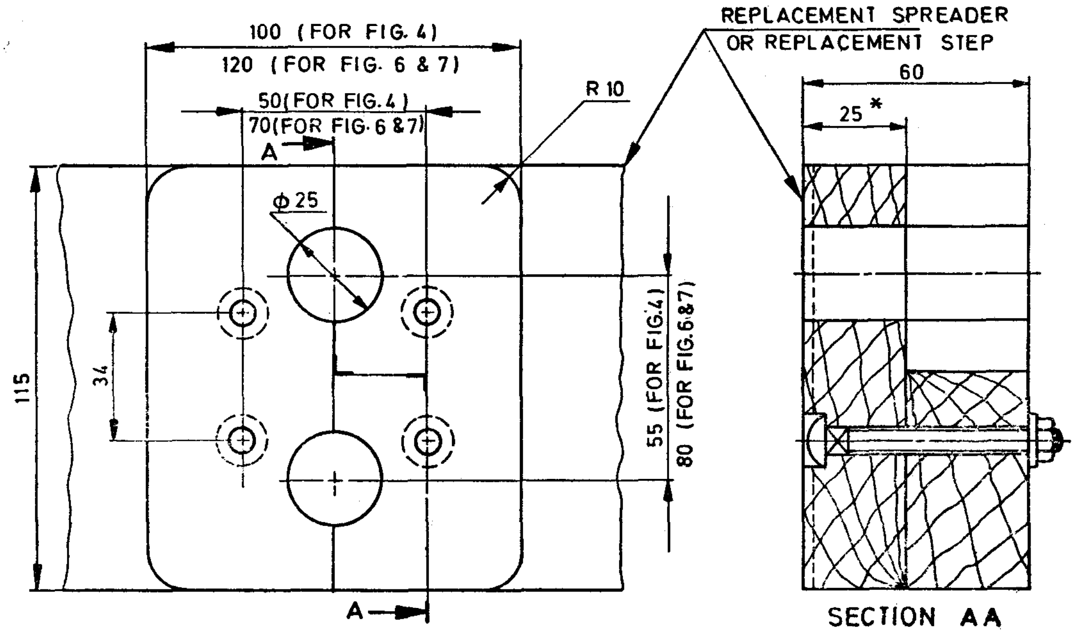
FIG. 3 STEP



*Excluding the depth of the grooving or non-slip coating see **4.3**

All dimensions in millimetres.

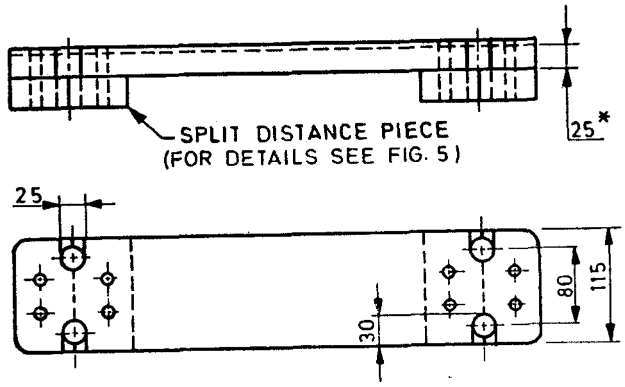
FIG. 4 SPREADER STEP



*Excluding the depth of the grooving or non-slip coating see **4.3**

All dimension in millimetres.

FIG. 5 SPLIT DISTANCE PIECE

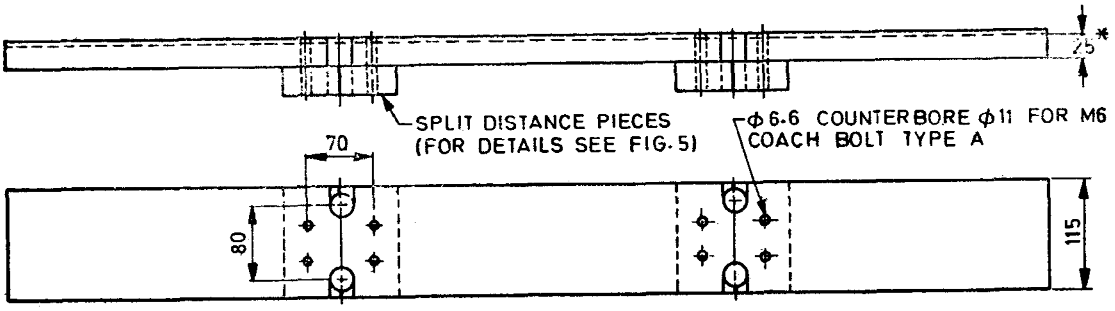


*Excluding the depth of the grooving or non-slip coated see **4.3**

Note — The other dimension are as in Fig. 3.

All dimensions in millimetres.

FIG. 6 REPLACEMENT STEP



*Excluding the depth of the grooving or non-slip coating see **4.3**

Note — The other dimensions are as in Fig. 4.

All dimensions in millimetres.

FIG. 7 REPLACEMENT SPREADER

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